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1851

Historical

AN HISTORICAL REVIEW

OF THE

**RISE, PROGRESS, PRESENT STATE, AND
PROSPECTS,**

OF THE

**SILK CULTURE, MANUFACTURE, AND
TRADE,**

IN

EUROPE & AMERICA.

BEING AN ARTICLE EXTRACTED FROM THE AMERICAN QUARTERLY
REVIEW FOR DECEMBER, 1831.

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SILK.

[From the American Quarterly Review for December, 1831.]

ART. VII.—*Essays on American Silk, and the best means of rendering it a source of Individual and National Wealth; with directions to Farmers for raising Silk-worms.* By JOHN D'HOMERGUE, *Silk Manufacturer*, and PETER S. DUPONCEAU, *Member of the American Philosophical Society.* 12mo. Grigg: Philadelphia: 1830.

WE have selected this work to be placed at the head of this article, out of a great number of publications that have appeared on the subject of silk, within the last five years, in America and Europe, because, of all we have seen, it contains, condensed in a small space, the most of those facts that are interesting to the people of these United States. At the time when that work appeared, very little was known in this country of the various processes through which silk passes from the cocoon to the loom; the *Essays* of M. D'Homergue, without pretending to instruct us practically in the *modus operandi* of those processes, have explained in a clear and perspicuous manner, the nature and object of each of them, and the effects which they produce, and thus cleared the way for those who would wish to engage in the culture or manufacture of that valuable production.

This work, indeed, has not only been favourably received by the public at large, but has attracted the attention of the National Legislature, who have thought the recommendation that it contains to disseminate the difficult art of extracting the raw silk from the cocoons throughout the United States, worthy of being taken into their serious consideration; and for that purpose, a bill was presented to the House of Representatives on the 12th of March 1830, by their committee on agriculture, presided by the venerable Ambrose Spencer, late chief justice of the state of New-York, which has hitherto been prevented, by the pressure of other business, from being acted upon; but which, it is expected, will be resumed by Congress at their approaching session.

We have said that a great number of works have been published on the subject of silk within the last five years in America and Europe; we might have added, in every part of Europe; for we have books before us, and in no inconsiderable number, published within that period, in England, France, Italy, and in various parts of Germany. Some of those books treat of the cul-

ture, others of the manufacture of silk, and not a few of the silk trade and of political economy as connected with it, according to the real or supposed interest of each particular nation. Thus in England, the question is warmly agitated whether *thrown* silk, like *raw* silk, ought to be allowed to be imported free of duty, (raw silk pays only in England, 1*d* per pound) while in Piedmont, where the exportation of the raw material has been hitherto prohibited, it is questioned whether that prohibition should not be taken off. In France, means are sought for to guard against the competition of the neighbouring states, particularly Switzerland, which begins to be considered as a formidable rival, and whose silk manufactures have already found their way into this country, where they are imported in pretty large quantities. In Austria, some attention, indeed, is paid to the culture and manufacture of silk in the Italian provinces; but as it is not certain that these will remain long annexed to the Imperial crown, great efforts are making to introduce those branches of industry into the hereditary dominions, particularly in Hungary, and if we believe the Chevalier von Heintl, the author of an interesting work on silk lately published at Vienna,* these efforts are not without success. In Bavaria, Prussia, and the other parts of Germany, the same object is pursued.

Indeed, the *serico-mania*, if we may so express ourselves, is carried so far every where in Europe, that attempts are making to naturalize the culture of silk in the north as well as the south. France is making experiments in her northern departments, England is repeating those, which she has hitherto so many times, since the reign of James I., unsuccessfully made;† Belgium has an establishment for that purpose in the vicinity of the town of *Ath*, in Hainault; the King of Prussia has appropriated the garden of the invalids at Berlin, to the cultivation of mulberry trees, under the care of a Signor Bolzanì; and where the culture of the material is not attempted nor thought sufficiently advanced, manufactures, at least, are introduced; they are numerous in the Prussian dominions, and Sweden herself has so far advanced, that

* Unterricht im Seidenbaue, von Franz, Ritter von Heintl. Wien, 1829.

† Since writing the above, we have seen Dr. Lardner's Treatise on Silk, being the 22d Vol. of his Cabinet Cyclopaedia, which appeared at London on the 1st of September last, in which he informs us that the Society for the Encouragement of Arts, &c. after having for a series of years proffered rewards to stimulate the culture of silk in England, has at last abandoned these attempts, and now limits itself to promoting the culture of silk in the colonies and in India, p. 324, note Z. So late as the year 1825, thousands of white mulberry plants were imported into England,—the newspapers of the following year announced that 8000 had been already planted. In 1827, the Silk Society offered those plants to all who would purchase them, at 4*d* a piece. An Italian writer, calculating the expense of 200,000 plants which they expected to have and sell at that price, computed that they would lose, on the whole, one million seven hundred and fifty thousand *lire*, equal to upwards of 250,000 dollars.

she has thought fit to prohibit the importation of French manufactured silks, with which she was formerly abundantly supplied.

It may not be uninteresting to trace the progress of this state of things; perhaps it may best be done by a rapid sketch of the history of silk to the present time.

Silk, generally believed to have originated in China, was known to the ancients. It was brought to them across Asia from the country of the *Seres*, a Scythian people, whom some suppose to have been Chinese Tartars; but that is not ascertained. They probably received it but seldom, and in small quantities, as it always bore an enormous price. They were entirely ignorant of the origin of this production. They ascribed it to a kind of spider or beetle, which drew the thread from its bowels, and wound it round the small branches of trees. This animal, called by the Greeks *σῆρ* or *σῆρα*, but to which the *Seres* gave another name, fed on millet during four years, and during the fifth, which was the last, on a kind of green cane, in which it much delighted. The people would open it, and extract balls of silk from its bowels. See Pausanias, lib. vi. in fin. The accounts given by Pliny, (Hist. l. 6. c. 17.) and Ammian Marcellinus, (l. 23. c. 6.) are not more satisfactory. The Romans had no word for silk in their language; they said *fila serica*, *nema sericum*, *vestis serica*, *subserica*, &c. Aristotle called it by the more appropriate name of *βομβυξία*. It seems the Greeks had some knowledge of it in his day.

Thus things remained until the reign of the Emperor Justinian. Every body knows how the eggs of the silk-worm were brought by two monks in a hollow cane from India to Constantinople, and how silk manufactures were established in time at Athens, Thebes, and Corinth; so that Greece, for a long time, was the only country in Europe where silk was produced. It is also well known, that the Peloponnesus lost its ancient name and took that of Morea, from the mulberry trees with which that country abounded.

About the middle of the twelfth century, Roger, King of Sicily, having made a successful war against Manuel, Emperor of the Greeks, brought from Athens, Corinth, and other places which he conquered, experienced workmen, under whose direction he established a silk manufacture at Palermo, and another in Calabria, whence the culture of silk gradually spread through the peninsula of Italy.

M. Lencisa, the Intendant of the province of Novi, in Piedmont, in a learned and interesting memoir presented to the Royal Academy of Sciences of Turin, in March 1829,* tells us, that

* *Memorie della Reale Accademia delle Scienze di Torino*. Tom. xxxiv. Classe di Scienze Morali, Storiche e filologiche, p. 137.

it is generally believed, (in Italy, we suppose) that silk was introduced from Sicily into the Spanish peninsula, about the middle of the *eleventh* century, which is impossible, since the conquest of Greece by King Roger was in the *twelfth*; but we must do that sensible writer the justice to say, that he does not concur in that *general* belief; for he observes that it appears indubitable, from various historical relations, that in the year 1099, there were in the kingdom of Jaen only, more than six hundred towns and villages, which flourished by the culture and manufacture of silk, which had reached its highest degree of perfection, precisely at the time when it is said to have been introduced there from Sicily. It is probable also, that the word *eleventh*, instead of *twelfth*, or *thirteenth*, century, in the passage referred to, is an error of the pen or of the press.

It is most probable that the culture of silk was brought into Spain and Portugal, by the Moors, their conquerors; at any rate, it is certain that they greatly encouraged that branch of industry. About the middle of the thirteenth century, their silk manufactures exceeded in perfection and beauty, all that were at that time known. It is said that when the Moors were expelled from Granada, there were several thousand persons employed in the filature and manufacture of silk in that city only, whence it had extended to Toledo, Murcia, Valencia, and several other places. The raw silks of Valencia, called *tramas*, are still esteemed. But the discovery of America, and the East Indies, soon produced their deleterious effects, by encouraging avarice and discouraging industry. In the fifteenth and sixteenth centuries, Spain was still reckoned among the nations trading in silk; in the eighteenth century, she ceased to be considered of that number.

The silk culture flourished in Mexico, long after the conquest of that country. Cortez introduced there the cultivation of the mulberry tree. Towards the end of the sixteenth century, taffeties were manufactured there, which were said to excel all other stuffs of the same kind. But some time in the last century, the company of the Philippine Islands, who imported every year a large quantity of raw silk into that country, persuaded the government to prohibit the culture of that material; so that no silk is produced at present in Mexico; and if it were, they have no persons skilled in the art of extracting it from the cocoons. They have throwsters and weavers, who manufacture chiefly sewing silk, shawls, and sashes, out of raw silk, imported from China, a great part of which passes through the United States. It is said that their government is endeavouring to introduce the culture of silk among them.

It is not, however, through Spain or Portugal, that the culture and manufacture of silk were introduced into the other parts of

Europe, but through Greece, in the first place, and Italy afterwards. It is useless to relate here how these branches of industry passed from Sicily and Naples into the Roman states, and from thence to Genoa, Venice, Lombardy, Tuscany, and Piedmont. During five centuries, Italy enriched herself by the monopoly of the silk trade. Her stuffs were admired and sought for every where. The principal manufactures were carried on at Genoa, Bologna, and Venice. The velvets of Genoa acquired and long maintained a well deserved reputation. The throwsting mill was invented at Bologna, but at what period we are not informed.

To this admirable machine, the manufacture of silk is principally indebted for the high perfection which it has attained. It is not sufficient to reel the silk from the cocoons, to make it fit to be employed in manufactures. It must be afterwards wound, doubled and twisted ; and this is done by means of the throwsting mill, and of various engines connected with it. After it has undergone these operations, it is called *thrown silk* ; before, it is only *raw silk*. The business of a silk throwster is entirely different from that of reelers. It is carried on, and to a very great extent, in countries where silk is not produced ; as for instance, in England. There are also throwsting establishments in silk producing countries, which thus enjoy a double advantage. In the United States, the business of silk throwing was unknown until the present year, when a few throwsting mills have been set up by English emigrants ; but they are obliged to work foreign silk, imported chiefly from China, as the silk culture, and above all, the difficult art of *filature*, are not sufficiently advanced to supply them with the native raw material.

These explanatory remarks have been thought necessary, to facilitate the intelligence of what is to follow, as we shall often have to speak of *raw* and *thrown* silk as contradistinguished from each other. We may now resume our narrative.

From Italy, the silk culture, with difficulty, penetrated into France. Under the reign of Charles VIII., between 1483 and 1498, some gentlemen imported a quantity of mulberry plants from Calabria ; nevertheless, the culture of silk did not make any remarkable progress until the reign of Henry the Fourth, who took it under his special protection. He invited, says Mr. D'Homerque, one *Michaeli*, from Italy, into his dominions, and gave him, for the purpose of forming an extensive plantation of mulberry trees, the castle of the Marquis de Fournes, situate on the river Gardon, in the vicinity of Nismes, which still bears the name of Michaeli's castle. But the art of filature, and the throwing of silk, were unknown at that time ; and the same writer tells us, that at Nismes, his native town, tradition has preserved the memory of millions sunk, by rich individuals, in the attempts

which they made to establish silk manufactures. It was reserved for the great Colbert, in the brilliant reign of Louis XIV., to place the silk trade on a solid foundation. He imported the stocking-loom from England, and above all, he invited into his dominions one Benay, a silk throwster from Bologna, who introduced the *throwsting mill*, for which important service he was nobly rewarded. "Il fut," says the *Dictionnaire Universel du Commerce*, verbo *Organsin*, "gratifié, pensionné et ennobli."* We shall see presently, that England, long afterwards, rewarded not less munificently, the individual who benefited his country by importing into it that invaluable machine.

The revocation of the Edict of Nantes, which took place shortly after the death of Colbert, gave a severe check to the silk trade in France, by compelling her manufacturers to fly to other countries, who enriched themselves by her loss. England, as we shall see, was not the last to profit by it. France, however, recovered from the shock, and after various vicissitudes, her silk manufactures, by means of her extensive commerce with Spain and the Levant, and of the colony of St. Domingo, were in a highly flourishing state at the beginning of the revolution, and until the year 1791, when the subversion of that colony began, and all the evils by which France was subsequently afflicted.

The throwsting mill was not introduced into England until the year 1719, and then by one John Lombe, as will be presently stated. Yet we find a company of *silk throwsters*, existing in that country so early as 1562, who were incorporated in 1629, and so prosperous had their business become, that it is said in the preamble to a statute passed in 1666, (13th and 14th Cha. II. c. 15.) that they had at that time no fewer than 40,000 individuals in their employment.† It would be curious to know by what processes they prepared their silk for the loom, as the throwsting mill was yet unknown among them. In 1685, the revocation of the Edict of Nantes brought to England a great number of silk manufacturers, who established themselves at Spitalfields; which, says the *Edinburgh Review*, has continued ever since the principal seat of the British silk manufacture. Yet, though the throwsting mill had been for some time in use in their country, it seems that they did not bring with them either a model or a drawing of that machinery. More than thirty years elapsed, before England at last came in possession of it.

An Englishman, of the name of John Lombe, (the name of such a benefactor to his country cannot be too often repeated,) about the year 1717, went over to Italy, for the purpose of obtaining a model or drawing of the throwsting mill. Notwithstanding

* He received pecuniary rewards, a pension, and a title of nobility.

† *Edinb. Rev.* vol. xliii. Nov. 1825, p. 77.

the vigilance of the Italians, he succeeded, and came home with the full knowledge of all the parts and dimensions of the machine, and all its apparatus. On his arrival in England, he obtained a patent, and erected his mill at Derby, where it still remains. Three or four years afterwards he died, and it was suspected that three Italians, two men and one woman, whom he had brought with him, had got rid of him by poison ; but there is little probability in that story. The woman, it is said, was brought before a magistrate and examined ; but nothing transpired, says my authority, *except what strengthened suspicion.** This story seems very apocryphal.

Be that as it may, in the year 1732, the patent having expired, his cousin and heir, Sir Thomas Lombe, who had, it is said, accumulated by it £80,000, applied to the Parliament for a renewal. The Parliament refused to grant it, but purchased his right for £14,000. Thus he was, as we have observed, not only liberally, but generously rewarded.

The Edinburgh Review, in the Article cited, very justly observes, that the year 1719, when the patent was granted, is "an important epoch in the history of the British silk manufacture." From that time it began to flourish, until it reached the high state of prosperity to which it has arrived.

The British nation, however, were not satisfied with possessing the means of manufacturing silk to any extent ; they wanted also the production of the raw material. So early as the reign of James I., efforts had been made to introduce the silk culture into England. But, says the historian Hume, adverting to this fact, "the climate seems unfavourable to the success of this project."† That prince, who hated tobacco as much as he loved silk, tried to introduce the latter into the colony of Virginia, but in that he also failed. He gave instructions to the Earl of Southampton, to urge the cultivation of silk in that colony, in preference to tobacco. His instructions were obeyed, and his successors renewed them ; the Colonial Legislature also, by rewards and encouragements, and even by inflicting fines, endeavoured to promote the scheme : but nothing resulted from it, except the planting of a great number of mulberry trees, many of which still remain in the eastern parts of the state.

Since this unsuccessful attempt, we perceive no other effort of the British nation or government, to introduce the culture of silk into their colonies, until the year 1732, the same year when the government purchased of Sir Thomas Lombe, for the use of the nation, his patent right to the newly imported throwsting mill. This, it would seem, produced considerable excitement :

* History of Derby, by W. Hutton. London, 1791.

† Hist. of England, note to James I.

for in that year, the settlement of the colony of Georgia was begun, and measures were immediately taken to introduce silk into it. They were in a great degree successful, because the proper means were adopted. It was understood that the planting of mulberry trees, and raising of silk worms, would not be long continued, if there were not some sufficient encouragement to induce the people to persevere; and the best encouragement was to provide the means of converting the silk of the cocoons to a profitable use. A filature therefore was established at Savannah, under the direction of a Piedmontese, skilled in the art. That filature was the property of the trustees of the colony, who resided in England, and had an agent on the spot to manage it for them. He purchased the cocoons of the planters, and had them reeled for the benefit of his employers. It is said, that in 1735, the third year from the first settlement of the colony, eight pounds of raw silk were exported to England, and there made into a piece of stuff, which was presented to the queen. This system, however, was not found to answer very well; in the year 1751, another plan was adopted. A public filature was erected, where the planters brought their cocoons to be reeled for a fixed price, and sold their raw silk to the merchants of the place, who exported it to England. Yet this did not succeed so well as might have been expected, for we find, that between 1755 and 1772, a period of seventeen years, only 8,829 pounds of raw silk were exported, which makes little more than 500 pounds per annum. At the revolution it ceased, and no traces of it have remained. The art of reeling silk from the cocoons, is as little known in Georgia as in the other states. This comes from the monopolizing system of the trustees, who, if they had disseminated that art, instead of keeping it to themselves, would have greatly benefited the colony, and at the same time the mother country. But perhaps they foresaw the separation which since took place.

In the year 1770, as says Mr. Lencisa,* or 1772, as is stated by Dr. Lardner, in his valuable treatise, which has just come to our hands, the British East India Company, with the view of rendering the silk of Bengal, which at that time was of the commonest kind, and fit only for inferior purposes, acceptable to the English manufacturer, sent proper machinery, and competent persons, to that country, for the establishment of filatures on the Italian system.† It was not, says the last mentioned author, until the year 1776, that any material advantage could be derived from that system. During ten years from that time, the average importation of raw silk from Bengal, amounted to 560,283 pounds

* *Memorie della Reale Accademia*, &c. p. 109.

† Lardner, on the Origin, progressive Improvement, and present State, of the Silk Manufacture, p. 11.

per annum. But the silk was considered greatly inferior, and prior to 1794, it was thought applicable to a very limited number of uses. The company then sent silk throwsters, to convert it into organzine, which measure was strongly opposed by the importers of foreign silks; who, at last, understood their own interest, and employed organzined East India silk for many of their best fabrics.

At the commencement of the French Revolution, Italy, France, and Great Britain, were the only Christian countries of Europe engaged in the silk trade. Spain, indeed, cultivated and manufactured silk, but not enough to supply herself and her colonies; the deficiency was furnished by France. The manufactures of Italy were no longer what they had been, and her trade in them was very circumscribed. She sold her raw and thrown silks to England and France; in some parts, as in Piedmont, the exportation of the former was prohibited, as it still is. The same prohibition existed, and still exists, in France.

Of the silk trade of England at that epoch, we cannot say much. When we received Dr. Lardner's treatise "on the origin, progressive improvement, and present state of the silk manufacture," which we have mentioned above, we expected to have found in it the materials to fill up this chasm; but on this subject the author says but little. He tells us, (p. 71) that in the year 1794, the quantity of silk organzined in the English mills did not exceed 50,000 pounds weight annually; the residue, therefore, must have been made up of Italian thrown silks, from whence we infer that her silk trade was not any thing to be compared to what it has become since. The organzines of Bengal were still discouraged by the importers of Italian silks, and the resources of that distant possession had not been sufficiently proved. By the commercial treaty of 1786, the silk manufactures of France were allowed to be imported into England on liberal terms; but the revolution, a few years afterwards, put an end to this branch of commerce.

France, at that time, was the country where the silk trade most flourished. Dr. Lardner informs us, (p. 48) that in that year, Lyons alone employed 15,000 looms, which appears below the mark; for the Chevalier von Heintz, (p. 15) asserts, that in 1789, there were in Paris, 30,000 looms for velvet, satin, and taffeties; 20,000 stocking, and 20,000 ribband looms, which produced the annual amount of 27,000,000 of florins; and yet Dr. Lardner says, that in that year, in consequence of the incipient revolution, the silk manufacture had fallen off in France, to one half of what it was three years before. This would appear incredible, if we were not satisfactorily informed, that the same thing happened on the invasion of France by the allies in 1814, and on the return of Napoleon from Elba. At the last epoch, at

Nismes, 3,000 silk looms were reduced to less than 1,000. This, however, was but temporary; but it shows the terrible effects of wars and political shocks on the industry of nations.

Such was the state of the silk culture and trade in Europe, at the beginning of the French Revolution. We shall pass over those disastrous times, and give a cursory view of what has taken place since the pacification of 1814, most of which had its source in the events of the revolutionary war. The remainder of this article shall be devoted to our own country.

The continental system, which the Emperor Napoleon conceived would have turned to the advantage of France, and to the detriment, nay, to the destruction of Great Britain, produced effects directly opposite, particularly in what concerns the silk trade. Great Britain, no longer able to supply herself in sufficient quantities with the raw material from Italy and Turkey, and with organzined silks from the former country, turned her thoughts seriously to the East Indies. The continental nations of Europe, no longer supplied with silk manufactures from any country but France, and she not being able to satisfy their wants, began to think of manufacturing for themselves; and even, as we have seen, to raise the raw material in their own countries, however the scheme might be opposed by their climates. While the wars were raging, their efforts were not considerable; but some years after the peace was confirmed, a general impulse towards the culture and manufacture of silk, was felt throughout Europe.

The Chevalier von Heintz, in his excellent treatise, which we always cite with pleasure, expresses himself thus: "a new era has begun in the history of the silk culture. Every where governments are at work, to turn the minds of their people towards this branch of industry; this epoch will be very important, because the benevolent views of the governments will be promoted by the agricultural societies which exist every where." (p. 57.)

The same author continues, and gives a view of what is doing in the different states of Germany, and in the north of Europe. "Extraordinary exertions," he says, "are making in the German states, who observe the flourishing silk culture in the hereditary dominions of Austria. Bavaria, Wurtemberg, Baden, Hesse, Nassau, Saxe-Meiningen, and Prussia, who at present draw their silk from the Lombardo-Venetian kingdom, are making every exertion to produce it themselves."

This writer then proceeds to state in detail the measures taken by different governments to introduce the culture of silk into their dominions, but our limits do not permit us to follow him in those particulars. Speaking of Prussia, the Netherlands, and Sweden, he mentions the facts that we have already noticed. In the latter country, he says, that "3,000 mulberry

trees have been planted at Ladugaardsholm, by order of King Charles John XIV., with a view to the raising of silk worms. But whether this project will succeed in that northern country is not yet ascertained. In France, Charles X., with a view to extend the culture of silk to the northern departments, purchased, in 1825, an estate at Corbeil, not far from Versailles, for a plantation of mulberry trees. Russia is making great efforts to introduce that culture in her newly acquired Asiatic possessions.* We know, from good authority, that she has already expended immense sums of money in that project, and that her success is yet doubtful. Lastly, he speaks of the efforts of Great Britain, both in England and Ireland, for the same object, which Dr. Lardner tells us, have proved abortive. And he concludes with saying, that “the extension of the culture of silk is an object which has attracted the attention of the *whole world*.” (p. 61.)

If the efforts of the nations of Europe to introduce the culture of silk even into their most northern latitudes, do not seem to promise to be attended with success, it is not so with their exertions to introduce the silk manufactures, which have already succeeded beyond all expectation. In order to form an idea of this, we must hear the complaints of M. de Teste, a late French writer, to whose able work on the present state of the silk trade in France,* we have frequently had recourse in the pursuit of these investigations. “Our neighbours,” says he, “animated with the spirit that inspired Henry IV. and Colbert, neglect none of the means by which to increase the prosperity of their silk manufactures. Do we not see already England advancing in India with gigantic steps; Zurich, rivalling by her competition, our manufactures of plain silks; Naples and Belgium, appropriating to themselves the commerce of sewing silks; Vienna annihilating our fabrics of handkerchiefs; Sweden, prohibiting our silk manufactures, and Stockholm endeavouring to supply her own consumption and that of Norway; Moscow, with larger establishments than our own, fabricating silk tissues of every kind? Have we not seen of late years agents from the Pacha of Egypt, enticing French manufacturers away from our country, and do we not see every day our machinery clandestinely transported to foreign lands?” A volume could not tell us more than this French writer does in these few lines. How different this state of things from that which existed before the French Revolution!

The silk manufacturers of Lyons, in a memorial presented to the minister of commerce and manufactures, in 1829,† hold the

* Du Commerce des Soies et Soieries en France, considéré dans ses rapports avec celui des autres Etats. Par Leon de Teste, Avignon, 1830: 8vo: pp. 180.

† Mémoire présenté à S. E. le Ministre du Commerce et des Manufactures par les fabricans d'étoffes de Soie de la Ville de Lyon. Lyon, 1829: 4to. pp. 46.

same language. The prosperity of their city, they say, is every day declining, not from transient and accidental circumstances, but from active and *permanent* causes, which strike their manufactures in the very principles of their existence. These causes do not proceed from some local abuses which they point out, and are easy to be remedied, but from the competition of their neighbours, particularly Switzerland, which being poor and industrious, and consequently able to afford her merchandise cheaper than France, and being nearer to the Italian markets of raw and thrown silks, supplies Germany and *America* with her manufactures, and threatens those of Lyons with destruction.

It is certain that many of the silk goods which commonly pass here for French manufacture, come from Switzerland. They are chiefly what are called *plain stuffs*, such as silk for umbrellas, levantines, taffeties, florences, ribbands, and some *gros de Naples*. They come through the ports of France, where they are allowed a transit, and also through Hamburg. It is to be presumed that they also find their way into Mexico and the South American states.

While the continental nations of Europe are thus making exertions to appropriate to themselves the benefits of the silk culture and trade, Great Britain is not unmindful of her interest in that particular. Indeed, the great advances she has made since the beginning of the present century, are well worthy of exciting attention. Her importations of raw and thrown silks from all parts of the world, have trebled since the year 1800. It will be curious to trace her progress during that period. For that purpose we have made the following abstracts from detailed tables in the work of M. De Teste. He states them to have been made at Milan, by one J. De Welz. The weights are given in Italian pounds of 12 ounces.—We can say nothing of their accuracy, except that we should not suppose that an Italian or a Frenchman would be disposed to exaggerate the commercial advantages of Great Britain.

Importations of raw and thrown silks into London and Liverpool, since the year 1800.

From 1800 to 1808, a period of nine years:—

	Pounds weight.	Totals.
Importations from Italy,	9,824,640	
from India & China,	7,149,400	
	<hr/>	16,974,040

Average for each year, 1,886,004 lbs.

From 1809 to 1817, nine years:—

Importations from Italy,	10,369,320	
from India & China,	10,898,600	
	<hr/>	21,267,920

Average for each year, 2,363,102 lbs.

From 1818 to 1826, nine years:—

	Pounds weight.	Totals.
Importations from Italy,	17,333,540	
from India & China,	19,721,600	
	<hr/>	37,055,140
Average for each year, 4,117,237 lbs.*		
Importations in 1827:—		
From Italy,	2,695,180	
India & China,	1,855,800	
Persia and the Levant,	408,600	
Into Liverpool,	316	
	<hr/>	1,959,896
Importations in 1828:—		
From Italy,	3,311,940	
India,	1,422,200	
China,	372,200	
Persia and the Levant,	762,000	
Spain,	14,800	
Into Liverpool,	228,140	
	<hr/>	6,111,280
Importations in 1829:—		
From Italy,	1,460,300	
India and China,	2,895,600	
China,	215,600	
Persia and the Levant,	294,200	
Spain and Teneriffe,	6,400	
Into Liverpool,	122,400	
	<hr/>	4,994,500

The reader will have observed, that a great part of the importations of the raw material by Great Britain, particularly of late years, are from her East India possessions. In the above tables, the importations from India are in general mixed with those from China; but in the table for 1828, they are fortunately separated, and the latter appear trifling in comparison with the former.

Of the rise and progress of the British filatures in India, we have but a very scanty knowledge. Dr. Lardner informs us that the reeling machinery was sent thither from England in 1772, but that until 1791, the quality of the Company's silk was considered to be very inferior to that produced in Italy and Turkey, and was thought applicable only to a very limited number of uses. From that time, he says, that the importations of India silk

* This would seem exaggerated; in the Edinburgh Review, vol. xliii. p. 80, Nov. 1825, there is a table, showing the imports of raw and thrown silk from 5th January, 1823, to 5th January, 1824, which amount only to 2,811,772 lbs.; of which 1,218,661 from Bengal, 196,787 from Italy, and 392,717 from China and Persia. The difference between Italian pounds and pounds avoirdupois, does not sufficiently account for that which appears here.

have been gradually improving in quality, until it now ranks, for the most part, very little below the Italian organzines, and in some few instances has even sold for the highest prices afforded by the market. (pp. 71, 72.)

He informs us further, (p. 73,) that Bengal silk is distinguished by two appellations—*country wound* and *filatures*, the former being furnished by native adventurers, who employ none but the rudest methods for winding it; while the latter is produced by the servants of the East India Company, and treated according to the most approved European methods. Throwing mills have also been introduced into India, where the silk is organzined. The best of the *filature* silks of India, are those of Radnagore and Cossimbazar, which again are excelled by those of Gonatea and Comarcolly. In the last of these, a system has been adopted, (we presume by means of Gensoul's celebrated apparatus,) of giving the necessary degree of heat to the cocoons while being wound, by means of steam.

Thus much Dr. Lardner. But in this distant country, we should like to know more of this silk establishment, begun so early as 1772, and which for a long time made such a slow progress. We have been informed from other sources, that their late success is owing to their having obtained a good director of a filature from Novi, in Piedmont, who taught their people the art of reeling silk from the cocoons, whence the best Bengal silks are quoted in the London prices current by the name of *Novi*; but at what period this Italian was brought into that country, and what course he pursued, notwithstanding the inquiries we have made, we have not been able to learn. We are told that the natives of Bengal are unwilling to abandon their imperfect methods of filature, which is the cause of the difference in price that exists between what are called the Company's and the *native* raw silks.

Although great quantities of India raw silks are yearly imported into England, it seems those importations are chiefly from the native filatures, and that the silks of the Company are yet very scarce. And it would seem also that the latter have not yet obtained the degree of estimation, in which those of France and Italy are held; for Mr. Badnall, a late intelligent English writer, tells us (p. 16.) that “notwithstanding all the attention and care which the East India Company have devoted to an amelioration of their filatures, *the only silk calculated for the manufacture of the richest qualities of broad goods, is that produced in Italy, or in the southern provinces of France.*”*

* A view of the silk trade, with remarks on the recent measures of government, in regard to that branch of manufacture, By Richard Badnall Esquire. London, 1828. pp. 108. 8vo.

Although Great Britain imports yearly such large quantities of raw and thrown silk from different countries, we must not suppose that the whole of it is employed in her manufactures; we are informed that she sells a great part of it to other nations, and even to France, who supplies herself in a considerable degree with raw silks, at the London market. Therefore, to judge of the relative state of the silk manufactures, and of the trade arising from them in Great Britain and France, we must lose sight of the importations of the raw material by the former, and confine ourselves to what they both actually manufacture. France imports no raw or thrown silks, except for the use of her manufacturers.

M. De Teste has supplied us with materials, which, if they are to be relied on, will help us in a great measure to make this interesting comparison, by two tables, showing the quantity of pounds of silk manufactured by England and France respectively, in the course of one year, and showing the countries where the silk is raised, or from whence it is imported. He assures us that the first of these statements is taken from the Registers of the English Custom-houses. As these two tables are short, we insert them here.

I. Statement of the Silks manufactured by England, from the 1st of April 1822, to the 20th of March 1823. (De Teste, p. 133.)

	Pounds weight.
Organzines of Piedmont and Italy, -	327,886
Raw silks of Italy, - - - -	542,556
Fantaisies, - - - -	45,965
Raw silks from the Levant, - -	224,054
Raw silks from India, - - - -	1,215,005
	<hr/>
	2,355,466*

II. Table showing the quantity of silk manufactured in France, in the course of one year. (De Teste, p. 128.)

	Kilograms.
French raw silk, - - - -	416,666
Organzines of Piedmont, - -	222,000
Raw and thrown silk of upper Italy, -	185,000
Silk from Naples, Sicily, the Levant, and India, - - - -	360,000
	<hr/>
	1,183,666

* When we compare this amount with that of 2,811,772, given in the Edinburgh Review, as mentioned in a note above, as that of the *importations* of Great Britain, in the year 1823-4, we are at a loss to conceive how this could be the *manufactured* amount in the next preceding year. Yet M. De Teste tells us that his statement is extracted from the *Books of the English Custom-houses*. If his extracts are of imports, instead of *manufactured goods*, then England must manufacture much less than France, which the Edinburgh Review will not allow.

The kilogram being somewhat more than two pounds, (say 2 pounds 5 drachms and a half) the above amount is something more than 2,367,332 pounds, making, with but a trifling difference in favour of France, the same quantity of silk which M. De Teste states to be annually manufactured in England.

The same author, however, tells us, (p. 131) that France consumes only one-fourth of the silk she manufactures, and exports the remainder to foreign countries, while England, on the contrary, (p. 136) consumes at home three-fourths of her silk manufactured goods, and sells to foreigners only one-fourth. We are willing to give credit to this very able writer for what he says respecting his own country; but we must acknowledge that we are not satisfied with his statements respecting British importations and manufactures—nor are we completely satisfied with the information that we receive from English writers. Taking for granted the fact, which we believe cannot be denied, that England imports more raw and thrown silks than she manufactures, we ought to have the means of taking a comparative view of what she converts into goods, and of what she disposes of in the unmanufactured state. This might easily be ascertained from the Registers of the British Custom-houses, as the drawback system requires the entry of the exportations as well as importations.

Until after the month of July 1826, the importation of foreign silk manufactures was prohibited in England. Since that period, by virtue of an act of Parliament passed in 1824, they are admitted under a protecting duty of 30 per cent. There are those who attribute to this measure the recent increase of the English silk trade. Others ascribe it to the improvement of the British filatures in the East Indies. This is a question which we are not called upon to decide.

France has a graduated rate of duties on imported silk manufactures; it is laid on the weight of the article. The lowest on plain stuffs, is 16 fr. per kilogram. The highest, on gold and silver tissues, is 31 fr. on the same weight. There is a small discriminating duty on silk stuffs imported in foreign ships or vessels.

But it is time we should turn to our own country. We have given, as well as we have been able, a general view of the silk culture, manufacture, and trade, in Europe, before the French Revolution, and of the changes that have taken place to the present time. We have selected the most important facts to lay before our readers, particularly those which have a bearing on the interest of the United States. It now remains for us to take a view of our own prospects, for prospects only they are at present, and to show in what manner this country, to which Providence has been so bountiful, may avail herself of the gifts she has received from the hands of her Creator, to reach the end to which

she appears destined, and become a rich silk-growing and silk-manufacturing country.

It is a fact now well ascertained, that the white Italian mulberry tree will grow and thrive in every part of the United States. Silk worms and cocoons have been successfully raised as far north as Kennebeck, in the State of Maine. In Connecticut, the mulberry trees abound, and cocoons are annually produced to a great amount, which are manufactured into sewing silk by the industrious females of Tolland and Windham counties, principally—the cocoons are very fine, and some of the worms produce two crops in the year. There is a considerable nursery of the white Italian mulberry in the vicinity of Philadelphia, and cocoons are raised in several counties of this State. We have seen some very fine produced in Indiana county. They are of the white species, compact and hard, and promise to yield much silk. The finest and the best that we have seen, are from South Carolina and Louisiana; of the latter, 14 lb. 6 oz. produced, on being reeled at Philadelphia, of course, after the chrysalis had been killed, 3 lb. 11 oz. of fine raw silk, spun for organzine, which will hardly be credited in Europe, where eight pounds, at least, of such cocoons, are required to produce an ounce of raw silk. We have seen some from South Carolina, which produced nearly the same results. The more northern cocoons, as far as has been observed, require about six pounds to one pound of silk. Further experiments, however, remain to be made. Much depends on the manner in which the silk worms are raised which make the cocoons, and those which we have mentioned from South Carolina and Louisiana, had been raised with great care, by persons well acquainted with the most approved methods.

The silk of the United States has been judged by experienced manufacturers in England to be equal in quality to that of Bengal. In France it has been found equal to some of their best silks. We have seen samples of *gros de Naples*, manufactured this year at Manchester, in England, out of raw silk sent from the filature at Philadelphia. It yields to none in beauty and lustre. The great characteristics of American silk, as of that of Bengal, are nerve and strength, in consequence of which it produces less waste in reeling and throwing, and the stuffs made out of it will exceed all others in durability.

We have seen in a preceding part of this article, the efforts that were made by the British government to introduce the culture of silk into Virginia, and those of the trustees of Georgia to establish it in that colony.—The former entirely failed, because no substantial encouragement was given to the colonists to induce them to produce cocoons; the latter, though it succeeded for a time, produced no lasting advantage, because the art of reeling

or spinning the silk was not diffused among the people, and consequently, at the revolution, was lost to the country. We shall now speak of similar attempts made by individuals in Pennsylvania and Connecticut, with a view to the same object, the one of which, though begun on correct principles, failed in consequence of an event which could not have been foreseen, and the other, though it succeeded, has been productive of no material advantage to the country.

In the year 1769, while the government of Great Britain were contemplating the introduction of the filature of raw silk into their possessions in India, Dr. Franklin, who watched every thing of the kind with an eagle's eye, and never lost sight of the interest of his country, wrote a letter to his friend, the late Dr. Cadwallader Evans, in which he recommended a plan for introducing the culture of silk into Pennsylvania. That letter was communicated to the American Philosophical Society, of which Franklin was then President, and that learned body immediately determined on submitting the plan to the colonial legislature, and requesting their aid to carry it into execution. On the 6th of February, 1770, they presented a petition to the House of Assembly, then sitting in Philadelphia, in which they set forth: "That in this province, where the mulberry tree is of spontaneous growth, and which is well adapted to the raising of silk worms; what seemed chiefly wanting to promote the culture of silk, was—that the cocoons or balls should be made a merchantable commodity to all who choose to sell them, and that there be a cheap and easy method of winding them for those who may choose to work up their silk for their own use." They therefore proposed: "That a public filature be established at Philadelphia (and afterwards at such places in the province as might be thought necessary) for winding cocoons, and that proper managers of the filature be appointed, with power to employ *a fit person*, at reasonable rates, to wind the cocoons belonging to all who may choose to work their own silk, and to purchase and wind for the public account all cocoons that may be offered for sale at the filature."^{*} For which purpose they desired appropriations of money to be made, the details of which are not important.

This was exactly the plan pursued by the trustees of Georgia, in which their two successive systems were combined; the one of converting cocoons into raw silk for a fixed price, the other of purchasing them for the government. The former was in favour of those who should wish to work their own silk, of which they could have only made coarse and imperfect stuffs, as the British

^{*} Votes and Proceedings of the House of Representatives of Pennsylvania, vol. vi. p. 216.

government would not, probably, at that time, have permitted the introduction of throwsting mills into the country; the other was entirely for the benefit of the owners of the filature, who would, of course, have sold their raw silk to the merchants to be exported to England. No one then seems to have thought of diffusing the art of reeling silk through the province, for the benefit of all, or perhaps circumstances rendered it difficult, at that early period, to carry such a plan into execution. That of Dr. Franklin, however, as well as that of the trustees of Georgia, were both placed on the right foundation, that of *beginning with the art of reeling the silk from the cocoons*; which the production of these would soon follow.

It does not appear that the Legislature acted at all on the Philosophical Society's petition; that learned body, however, were not discouraged; they raised money by private subscriptions, and erected a filature at Philadelphia, in which it is said, a skillful Frenchman was employed; but we have not been able to discover his name, or what became of him or of the filature at the revolution, which put an end to the scheme. All our endeavours to obtain further particulars have been fruitless.

Ten years before that period, in 1760, while war was still raging in America between Great Britain and France, a Mr. Nathaniel Aspinwall, who, from all accounts we have of him, was a zealous patriot, undertook to introduce the culture of silk into the colony of Connecticut. He had planted on Long Island, a large nursery of mulberry trees; he planted another at New-Haven, and was very active in obtaining acts of the legislature, granting liberal bounties not only to those who should plant and raise mulberry trees, but also to those who should produce given quantities of *raw silk*. Neither Mr. Aspinwall, nor the legislature of Connecticut, seem to have been aware of any difficulty in the preparation of that article, of any art to be learnt by instruction and experience, or of any peculiar machinery to be employed, to give that form to the raw material, which alone could fit it to be employed in manufactures, and thus become a source of riches to the country; on the contrary, they obtained legislative encouragement for the use of rude and imperfect methods, which it will be found hereafter difficult to eradicate. Their only object, perhaps, was to promote domestic industry, not to produce riches.

The effect was such as might have been foreseen, if the promoters of this scheme had possessed the knowledge which it seems they wanted. Mulberry trees were planted in various parts of the colony, but chiefly in what is now the counties of Windham and Tolland. Silk-worms then were raised, and cocoons produced, and the industrious females immediately set to work, not only to spin the raw material, but to convert it into sewing-silk. For

these operations they used no other machinery than their common spinning-wheels, and it is but justice to them to say, that it is astonishing how well they succeeded in producing an article, which, though not merchantable in our great commercial towns, serves them for a great number of domestic purposes. But it must be said also, that during seventy years, that the manufacture has been carried on among them, it has not at all improved, nor is it likely to improve, until they shall adopt different methods and different machinery.

In fact, the making of sewing-silk, in countries where the silk manufactures are known and practised, employs persons of two different professions, entirely distinct from each other. The reeling of the silk, as it is called, that is to say, the extracting of the raw material from the cocoons, and spinning it into hanks or skeins, is performed by women, either in large filatures, under the direction of an overseer, or on a small scale, in the farmers' houses, by females who have had long practice and experience. This art, simple as it appears, is nevertheless difficult, because of the great evenness required in the threads, and of other requisites, which demand a great deal of skill and dexterity, as well as practice. The machinery for this process, however, is simple, and not very costly.

From the hands of the reelers, the silk passes into those of the throwster, who converts it into sewing-silk. The machinery which he uses, is costly and complicated. His two principal operations are winding the raw silk from the skeins upon bobbins, which is done by a machine called a winder, and afterwards twisting it backwards and forwards several times, in the throwsting mill. If the threads stick too much to each other, by means of the gum with which they are impregnated, (which happens from the unskilfulness or inattention of the reeler) those threads frequently break in the operation of winding, and if there is also too great a degree of inequality in the silk, the weak parts break in that of twisting, and from these and other defects arise what is called *waste*, which produces considerable loss. Mr. Badnall, the English writer above cited, informs us, (p. 34) that the best Italian and French silks, lose only by waste, from 4 to 10 per cent.; the American silk reeled at Philadelphia under Mr. D'Homerque's direction, and sent to Manchester to be manufactured, lost only, as we are assured, 3½ per cent., which is astonishing, considering that it was the first essay of American women, in an art till then entirely unknown to them.

It is by the degree of waste that it suffers in throwing, that its good or bad reeling is judged of, and its value chiefly estimated. We are informed by the Manual published in 1828, under the authority of Congress, that the raw silk, produced by the women of Connecticut, according to their present method, loses, on

being thrown, $37\frac{1}{2}$ per cent., a proportion of waste far beyond any experienced elsewhere. See Manual, p. 214.

The sewing-silk of Connecticut, is not twisted by throwsters, but by the same women who extract it from the cocoons, and with the same domestic machinery. The operation of dyeing, which follows, wants also the perfection which it would receive from the masters of the art.

However disposed we may be, (and none, surely, are more so than ourselves) to praise the talent, ingenuity, and industry of our fair countrywomen, we cannot be so blinded by our prepossession in their favour, as to believe that they can perform impossibilities. We admire them for what they have done, which is a great deal more than could have been expected under such circumstances. But we are bound to say, that they have been led into a wrong course, the proof of which is, that the silk districts, which ought to be the richest, are the poorest parts of the state of Connecticut.

The sewing-silk made in that state, in the manner we have described, is sold by the farmers to the country merchants or traders, who sell, or commit it to pedlars, who hawk it about the country and exchange it for all sorts of produce. Very little cash is employed in these transactions. Skeins of silk, of which the length has been fixed by an act of the legislature, to prevent frauds, are taken in payment as money, in the shops or stores, at a fixed price, for the articles that the farmers stand in need of, and thus it has become a sort of currency. According to the Manual, the price of those skeins was, in 1828, at the rate of four dollars per pound. See the Manual, page last above cited.

We have been informed by persons who reside on the spot, that the sales of sewing silk in the two counties of Windham and Tolland, including the town of Mansfield, amount annually to \$15,000 or \$18,000. This is, of course, nominal, as the sales are made almost entirely by way of barter. We learn also, from the same source, that this amount is produced by 8000 pounds of raw silk, each of which is made out of 20 pounds of cocoons, and which we suppose will make in the whole, about 4000 or 4500 pounds of sewing silk. From these data, it is easy to show how it happens that those silk districts remain so poor in the midst of their riches; and how much more they would gain, if they were only to confine themselves to the sale of their cocoons. Forty cents per pound have been given for good cocoons in the city of Philadelphia, during the two last summers, and it is probable that this price will be kept up at least for some years. But let us suppose them to be worth only 25 cents per pound; 8000 pounds of raw silk require 160,000 pounds of cocoons, which, at 25 cents, would give \$40,000, and at 40 cents, \$64,000. Deduct from either of these sums, \$18,000, and see what a difference it will make in favour of the Connecticut far-

mer ! And this not to be paid for in barter or on credit, but in ready money, and in good gold or silver coin, or in bank notes.

We know, that from time to time, puffs are inserted in our newspapers, to mislead the public as to the real state of the silk culture and manufacture in Connecticut, in which every fact is grossly exaggerated. What we have said above is from good authority ; indeed, we obtained it at Mansfield, during a short stay that we made there in the course of last summer. We have thought it necessary to be rather prolix on this subject, because we find this *sewing silk mania* extending fast through almost every state in this Union, and as we think it will only tend to introduce an unprofitable business, and what is worse, bad methods of reeling and twisting silk, into our country, we could not say too much to put our fellow-citizens on their guard against an evil which we sincerely deprecate.

About the year 1790, the same Mr. Aspinwall made some efforts to introduce the silk culture into the states of New-York, New-Jersey, and Pennsylvania. He produced a temporary excitement, which resulted in the planting of a considerable number of mulberry trees, but his endeavours, active and zealous as they were, had no other effect ; because, says the author of the manual, “ there was no inducement for the people to raise cocoons—there was *no market for them*.” For, very judiciously observes the same author, “ there can be no hesitation in saying, that a *ready sale* for cocoons, is *alone* wanting to establish the silk culture as a regular employment in the United States.” (Manual, p. 17.)

And how is a market for cocoons to be established ? Not by telling the people that they must plant mulberry trees, and raise silk-worms ; not by publishing manuals to instruct them in the best methods of producing the cocoons ; but by introducing effectually into the country those arts which alone can make that culture profitable. When this is done, the mulberry trees, and the silk worms, and the cocoons, and the manuals, will come of themselves.

The period which Mr. Aspinwall chose for introducing the silk culture among us was not well chosen. The French Revolution had begun, and Europe was on the point of being involved in a general war. Commerce in the north, and the culture of cotton in the south, engrossed the whole attention of our citizens. Therefore it is no wonder that his project failed, even if it had possessed all the requisites that were wanting to make it succeed. No more was heard of silk in this country until about the year 1825.

At that time the *silk mania* was, in Europe, at its greatest height. Great Britain had just been compelled to abandon her long cherished prohibitory system, to protect her own silk trade against the competition of her rivals. There is seldom a great

excitement in the civilized parts of the other hemisphere, but it is felt more or less in this country. It was so in this instance. Many other reasons concurred. The cotton trade was declining; silk had every where taken the place of muslins, as an article of female clothing, and our importations of those rich tissues already amounted to many millions, which our exports of bread stuffs did not compensate. The attention of the people of the United States was once more drawn towards the silk culture, as the best and the most effectual means of advancing, at the same time our agriculture, our manufactures, and our commerce, and thus shaking off our too great dependance on the manufacturing nations of Europe.

On the 29th of December 1825, on the motion of Mr. Miner, a member from Pennsylvania, it was resolved by the House of Representatives of the United States: "that the committee on agriculture be instructed to inquire, whether the cultivation of the mulberry tree, and the breeding of silk worms, for the purpose of producing silk, be a subject worthy of legislative attention, and should they think it to be so, whether any legislative provisions were necessary or proper to promote the production of silk."—The committee were, moreover, authorized to report such facts and opinions as they might think useful or proper.

On the 2d of May 1826, the committee made an elaborate report, in which, after showing by a variety of facts, that excellent silk might be produced in every part of the United States, from north to south, they proceeded to prove not only the expediency, but the indispensable necessity of encouraging that culture, and among the reasons which they adduced for this measure, they relied principally on the enormous amount of our annual importations of silk goods, compared with our exports of bread stuffs.—They presented the following statement of silk goods, imported and exported in five years, from 1821 to 1825, both inclusive.

Years.	Imported.	Exported.
1821,	\$ 4,486,924	\$ 1,067,233
1822,	6,480,928	1,016,262
1823,	6,713,771	1,512,449
1824,	7,203,344	1,816,325
1825,	10,271,527	2,565,742
	<hr/> \$ 35,156,494	<hr/> \$ 7,978,011

In 1817, they added, the exports of bread stuffs amounted to \$20,374,000. In 1818, to \$15,388,000. In 1821, to \$6,799,246. In 1825, to \$5,417,997.

Upon this, the committee exclaim: "An importation of ten millions of dollars of silks; an exportation of five millions of

bread stuffs! The facts speak the importance of the subject, and indicate the necessity that exists of awakening the slumbering agricultural resources of our country, by introducing new and profitable articles of production."

But how were these *slumbering agricultural resources* to be awakened? How was this profitable production, silk, to be introduced? "Knowledge," said the committee, "is power in agriculture no less than in politics; information is capital and the means of valuable improvement." On the strength of these very correct and valuable maxims, they recommended in general, in the body of their report, the collecting of every possible information, from all parts of our country, respecting the actual state of the silk culture, and the best means of improving it, and concluded with proposing to the House, the following resolution, which was unanimously adopted:

"Resolved, That the secretary of the treasury cause to be prepared a well digested manual, containing the best practical information that can be collected on the growth and manufacture of silk, adapted to the different parts of the Union, containing such facts and observations in relation to the growth and manufacture of silk in other countries, as may be useful, and that the same be laid before Congress at the commencement of their next session."

In pursuance of this resolution, and of the general recommendation of the committee, the Secretary of the Treasury, Mr. Rush, addressed a circular letter to all such persons in the United States, as were thought to be acquainted with the culture or manufacture of silk, containing pertinent questions, which they were requested to answer, and committed to Dr. James Mease, of Philadelphia, the task of compiling the manual which the House had ordered to be prepared. This manual was reported to the House, on the 11th of February 1828. Six thousand copies of it were ordered to be printed.

But, neither the manual, nor (as far as we know) the answers to the circular, pointed out the true and only means of introducing, with effect, the silk culture into this country. The primary importance of the art of reeling or spinning the raw material, and the difficulty of obtaining it, do not seem to have occurred to any one. It was not considered that when an art is exclusively in the possession of foreigners, it is from foreigners only that it can be acquired. It was not recollected that France imported from Italy the reel and the reellers, and the throwsting mill and the throwsters, and that before she did that, immense sums of money were sunk by her capitalists, in the vain attempt to succeed without that aid; nor was it remembered that in Georgia, an Italian, in Philadelphia, a Frenchman, and in Bengal, a Piedmontese, had been thought necessary to be placed at the head of their filatures, and that wherever a different system had been pursued, the attempts to introduce the culture of silk, had uniformly failed, or, as in Connecticut, had produced bad methods,

which it will take years to eradicate. Some persons thought that it would be sufficient to import the machinery, without reflecting that machines do not work alone, and that they require to be put in motion by skillful and experienced hands. In short, as the committee of the House of Representatives well understood, light was wanted, and light at last came.

In the summer of 1829, the work which we have placed at the head of this article appeared at Philadelphia, in successive numbers, which were published in the *National Gazette*, and were signed "J. D'Homergue." They attracted universal attention, and were republished in most of the newspapers throughout the Union. M. D'Homergue is a foreigner and a young man, the son of an eminent silk manufacturer of Nismes, in France, by whom he was educated in his profession, which he, however, afterwards relinquished. Being in the city of Philadelphia, in the month of July, he made experiments on American cocoons, which produced astonishing results, and showed our silk to be at least equal, if not superior to any in the world. Indeed, in one respect, in the quantity of silk produced by a given weight of cocoons, its superiority could not be denied. He communicated these facts to the President of the American Philosophical Society, Mr. Duponceau, who encouraged him to make them publicly known, and as he did not understand the English language, Mr. Duponceau lent him his aid, and the results of Mr. D'Homergue's experiments were published as we have stated above.

It was not intended at that time, to publish any thing more. But in the subsequent conversations which Mr. Duponceau had with Mr. D'Homergue, he became convinced of the importance and the difficulty of the art of reeling silk, which opinion he found confirmed by the best European writers on that subject. He saw, at the same time, as he pursued his inquiries, that that art was variously practised in different silk countries, and that the value of the article in foreign markets, depended in a great measure on the perfection of the reeling; and he saw also that in countries where an imperfect method had obtained, improvement was in vain to be expected. Thus the raw silk of China, the country of its origin, bears a much inferior price to that of Italy and France; and that of Greece, the first country in Europe where silk was first introduced, is still inferior.

To introduce, therefore, an uniform and a perfect method of reeling silk, into the United States, appeared to him an object of the first importance. The first thing to be done to attain that end, was to enlighten the public mind, by giving a clear view of the various processes which silk undergoes from the cocoon to the loom. To this he found Mr. D'Homergue's knowledge perfectly adequate; and availing himself of it, Mr. Duponceau embodied

the information he received from him with his own observations, in the form of the essays which successively appeared.

The success which those essays met with, induced Mr. Duponceau to collect and publish them, in the joint names of Mr. D'Homergue and his own, in the form of a pamphlet, to which he wrote a preface, in which he urged the importance of the art of reeling, and made known Mr. D'Homergue as the only person in this country, qualified to give instruction in it. He showed the difficulty of procuring from Europe persons thus qualified ; a difficulty which experience has sufficiently proved, by the fact, that during two years that have since elapsed, silk throwsters, silk dyers, and silk weavers, have come in numbers to this country from Europe, *and not one reeler*, either male or female.

The manual labour of reeling is, as we have said before, performed in Europe by women, of the lowest class, who are very ignorant, and unwilling to leave their native villages. Even if they could be induced to come, they would be very unfit instructors in the art. As to directors of filatures, there are not many of them ; they are in general men of advanced age, with families, and whose situation is such, that it would not be a small consideration which would induce them to change it. We believe that such another person as Mr. D'Homergue, would be difficult to be found, even in France.

The essays having been thus published, a copy was presented, as a mark of respect, from the authors, to each of the two Legislative Houses of the United States. The House of Representatives referred the work to their Committee on Agriculture, who, convinced from its perusal, of the importance of the art of silk filature, and the necessity of introducing it in an uniform manner into our country, conceived the idea of establishing a normal school of that art, on national principles ; and by their Chairman, wrote to Mr. Duponceau, to be informed of the terms on which Mr. D'Homergue would consent to be placed at the head of it, in the capacity of instructor. After conferring with that gentleman, Mr. Duponceau submitted in answer, a plan to the committee, of which the following are the outlines.

For satisfactory reasons, which Mr. Duponceau explained, and which met with the approbation of the committee, the school was to be located at, or in the vicinity of Philadelphia. The number of pupils, young men between the ages of eighteen and twenty-five, to be sixty, to be sent from the different states, in proportion to their representation in Congress, and to be selected by the President, on the recommendation of the Executive of each state. The time of instruction to be two years, that is to say, two summers or reeling seasons, from the first of July to the middle or end of November, in every year. The pupils to board themselves at their or their friends' expense ; but to be gratui-

tously instructed in the theory and practice, and in the mercantile as well as the mechanical parts of the business. A filature, in which twenty women, at least, should be employed, to be kept going at the same time, that the pupils might see and learn how such an establishment is to be directed and managed.

For this service, to be rendered to the nation at large, and for the benefit of every state in the Union, Mr. D'Homergue asked the sum of forty thousand dollars, to be paid in different instalments. For this sum he would undertake not only to teach the pupils, but to be at all the expense of erections and machinery, and at the end of the two years, his undertaking having been performed, the buildings, implements, machinery, and money, (if any) which should remain, to be his absolute property. A sufficient guarantee was offered to guard against the misapplication of the money.

This plan met with the full approbation of the committee, and was reported by them to the House, in the form of a bill. But the session was drawing to a close, and the consideration of the bill was necessarily postponed. The House, however, ordered it to be printed, as well as the committee's report and Mr. Duponceau's letter to them, in which the plan was fully developed.

The encouragement which these proceedings held out to Mr. D'Homergue, with the pressing exhortations of Mr. Duponceau, induced him to stay one year longer in this country. It was thought that that year could not be better employed, than in making further experiments, calculated to show to Congress and to the nation at large, the advantages which might be derived from the adoption of the contemplated plan. A filature of ten reels was erected, cocoons were purchased from all parts of the United States, women were employed in reeling the silk, and a quantity of the raw material was produced, chiefly calculated for the manufacture of fine stuffs. But that was not thought sufficient. Mr. Duponceau suggested to Mr. D'Homergue the idea of manufacturing some of it into stuffs, and it was determined to make out of it a *flag of the United States*. But there were difficulties in the way, which it was thought at first could not be conquered. There was no *throwsting mill*, with which to give the silk the necessary preparation of *throwing*, before manufacturing it. To have had one made, would have not only occasioned great expense, but also loss of time, which could not be afforded. The weaving apparatus, too, required a different construction. All these difficulties Mr. D'Homergue overcame by dint of labour and perseverance. He wound and twisted his raw silk as well as he could, with the instruments that he had at hand. Some of the weaving machinery, which he had previously ordered from France, fortunately arrived in time; a suitable loom was constructed, and he succeeded, at last, in making not one flag only,

but two, one of which was presented by Mr. Duponceau to the House of Representatives of the United States, and the other to that of Pennsylvania. Those flags were each twelve feet long and six feet wide; one of them was woven entirely of one piece. The whole was the work of Mr. D'Homergue, except the dyeing, which was done by an artist of Philadelphia.

These flags were received by the legislative houses to which they were presented, with honourable marks of satisfaction. They were ordered to be suspended in some conspicuous part of the hall of their respective sittings, and that presented to Congress now waves over the full length picture of the illustrious Lafayette. This was at the beginning of the session 1830-31.

It was then expected that the bill reported by the Committee on Agriculture at the former session, would have been decided on. The trial of Judge Peek, at which all the members of the House of Representatives attended, took up the greatest part of the session, which ended on the 4th of March. Notwithstanding this, and the great pressure of other business, a day was appointed by a large majority for taking the silk bill into consideration. An unexpected circumstance prevented its being taken up on that day, and the session being near its end, it could not be brought on again. A general impression, however, appeared among the members in favour of this bill.

Notwithstanding this disappointment, Mr. D'Homergue was persuaded to stay another year among us, and to await what another session of Congress would produce. The greatest part of the last summer has been employed in reeling silk, but not on such an extensive scale as during the last season. Fewer women were employed, but they had improved, and produced nearly the same quantity of raw silk that a greater number had done the preceding year, and with a less quantity of cocoons. A throwsting mill, by this time, had been established at Manayunk, near Philadelphia, under the direction of an excellent English silk throwster; it was determined that he should throw the raw silk reeled at the Philadelphia filature, and that it should be woven into different stuffs, by different silk manufacturers, many of whom have lately arrived in this country from Europe. But the silk throwster, Mr. Stratton, being in the employment of another person, for whom he throws China silk, could not give much of his time to Mr. Duponceau and Mr. D'Homergue. On the other hand, the foreign workmen, being poor, and not yet established in their business, it was found to require too much expense to purchase for them the necessary apparatus. All, therefore, that has hitherto been effected, has been the making of some yards of silk plush, for hats, or for waistcoats, which have succeeded very well, and been found superior to any imported.

In the mean time, some of the raw silk which was reeled in the preceding year, was sent to England, some to France, and some to Mexico; that sent to England was pronounced there to be a fair beginning, and to promise much for the future. It was manufactured at Manchester into beautiful *gros de Naples*, of which the samples sent to this country have been much admired: and what is most extraordinary, it produced only $3\frac{2}{3}$ per cent. waste in throwing, while French and Italian silks lose from four to ten per cent., and some other silks as much as twenty; a proof of the strength and nerve of the silk of our country, and a proof also of the little progress which the people of Connecticut have made since seventy years, in the art of reeling, who with *such silk*, lose by waste, *thirty-seven and a half per cent.* That sent to Lyons, is yet under trial. That shipped to Mexico was coarse silk, and sold there for \$4.75 a pound. It had not been tried in the throwsting mill, and no report has yet reached us of the results that it did produce.

Thus we have given to our readers, as briefly as we have been able, a rapid sketch of the History of Silk in Europe and America, to the present time. If we have been rather prolix in what relates to our own country, it is no more than should have been expected. Our own concerns interest us more than those of the rest of the world.

We are among those who believe that the future success of the United States in the silk culture, manufacture and trade, depends on the adoption of a plan proposed by Mr. Duponceau. It is eminently national, since the art of reeling is not by it to be confined to one state, but to be diffused at once, in the same degree of perfection, through all the states of this widely extended Union. The effects to be expected from it are these; the sixty young men who are to be taught at Mr. D'Homergue's school, after their two years' instruction, will return to their own states, where, with their own means, or connecting themselves with capitalists, or rich planters, they will erect filatures, and instruct women, who, after acquiring a sufficient degree of skill and experience, will reel silk for themselves on a small scale, or hire themselves out to the silk-growing farmers. In the planting states, a female slave, skilled in the art of reeling silk, will command a price proportioned to the advantage which their knowledge will produce to their owners.

Notwithstanding all that has been said and published within the last two years, there are still some persons (very few, indeed,) who will not yet believe that there is any considerable difficulty in the art of reeling, and who, at any rate, think, that this difficulty may be surmounted by gradual improvement, without preliminary instruction. Experience, and the authority of the best writers on the subject, sufficiently prove the contrary

We think it will not be out of place to cite here a few of the authorities to which we allude.

The Chevalier von Heintz, in the work which we have already often cited, has a chapter (p. 141,) on the subject of reeling silk from the cocoons, in which, after giving a short description of the process, he says: "But a mere description of this art, can never supply the place of ocular instruction."

M. De Teste, in the work above cited, also gives a description of the process of reeling, after which he says: "after reading this description, it will certainly be believed that the management of a filature is a very easy thing; if the theory is easy, there is nothing so difficult as the practice." And further he says, "silk is always too dear, when it is not well reeled." De Teste, pp. 58, 59.

M. Pitaro, a celebrated Italian writer on the silk culture, expresses himself thus: "Every body in Italy and France, say some ill informed theorists, knows how to reel silk from the cocoons, and yet the manufacturers in Italy, as every where else, continually reproach the directors of filatures with receiving from them raw silks, which they can with difficulty make use of, and which they find difficult to employ in the various tissues required of them. Besides the irregularity and inequality of the silk in strength and in size, their silk is very often crispy. But these directors, deaf to all observation, *or wanting the necessary knowledge*, take no notice of what is said to them; whence it follows, that their filatures can only degenerate, and the silk trade be destroyed." *La Science de la Setiforè*, p. 117.

The silk manufacturers of Lyons, in their above cited memorial to the French Government, speaking of ill reeled silks, say: "whatever may be the skill of the French throwsters, it is impossible with *such raw silk*, to produce *thrown silk* of good quality. The best method of throwing silk, cannot give to that which is badly reeled, the qualities that it wants; in the same manner, a bad method of throwing, does not deprive silk, which being well reeled, is neat, equal and nervous, of those indispensable qualities for the good and easy fabrication of silk stuffs." *Memoire*, p. 25.

Our gallant Commodore Porter, being lately at Mahon, where he saw a woman reeling silk in the domestic way, wrote to his friend Mr. Skinner of Baltimore, expressing his surprise at the simplicity of the process, and the little trouble attending it. A few days afterwards, after a more attentive examination, and probably information received from persons on the spot, he held a different language in another letter to the same friend. In that last letter, he says: "In reeling the cocoons, it is of the utmost importance to find a *skillful person*; for if they be reeled by one who has not had great practice, the *loss* that will be sustained is

inconceivable." These letters have been published in the American Farmer, the Baltimore Gazette, and in several others of our newspapers.

We might multiply these citations; but we think our position sufficiently proved, and that the art of reeling silk is not so easy as some would pretend—as to expecting gradual improvement, where a bad method has been once introduced, it is sufficient to refer to the example of Connecticut, where, in seventy years, no improvement in the method of reeling has taken place, and that of the natives of Bengal, whose silk (though the same in quality) bears a price so inferior to that which is reeled by the agents of the East India Company, because the latter make use of a more perfect process, while the former adhere to the routine of their ancestors. A single glance over the London prices current, will show the difference in those of silks, from different countries, and even in the same country, from different filatures, which difference proceeds much more from the method of reeling employed, than from the quality of the material. The silks of Greece and Turkey, are admitted to be excellent, and yet their prices are much inferior to those of Italy and France, where the best methods of reeling are known to be employed.

It is the opinion of the authors of the "Essays on American Silk," that we ought to proceed with silk as we have done with cotton; and, for some years at least, content ourselves with preparing the raw material as an article of exportation to foreign markets, and postpone the undertaking of silk fabrics, until a more distant period. But the spirit of manufacturing is abroad, and it will be difficult to check it for any time. Already, as has been observed, silk manufacturers of every description have come to this country from Europe, and throwsting mills, which two years ago were unknown, are erected and at work upon foreign raw silk, in different parts of our Union. China silk, which, formerly, only passed through this country to go to Mexico, begins to be imported in larger quantities, and part of it remains here to be manufactured, after being thrown, into a variety of common articles, such as suspenders, coach lace, fringe, and the like. These things must be left to take their own course; but it remains certain, that unless we learn the art of reeling our own silk, our throwsters and manufacturers will be at work upon that of other countries, and that nothing but the knowledge of that art is wanting, to enable us to vie with other nations, at least in our own markets. There is every reason to hope that it will not be long before this deficiency shall have ceased to exist, and that the art of extracting silk from the cocoons, in the forms best suited to the various manufactures of that material, will be generally known and disseminated through our country.

In the mean while, our citizens should be active in planting

mulberry trees, and raising silk worms, for the production of cocoons. This should be encouraged by the legislature of every state in the Union. The best plan for that purpose would be, in our opinion, the granting a bounty to those who should produce a given number of plants of the white Italian mulberry tree, of at least three years' growth. It is thought that fifty dollars for every three thousand would be sufficient. The expense upon the whole would not be very considerable.

We have already exceeded the limits that we had prescribed to ourselves, and therefore we shall put an end to this already too long article. In conclusion, we shall recommend to our readers, as the manual on the culture of silk the best calculated for the farmers of our country, that which has been lately compiled by order of the Massachusetts Legislature, by Jonathan H. Cobb, Esq. and is for sale at Boston; and for a more enlarged work, particularly on the subject of manufactures, we know of no better one than that of Dr. Lardner, above frequently cited, and which we understand is now about to be republished by Messrs. Carey & Lea.

NOTE.—Since this article was written, and while it was in the press, we have received from England a copy of the Report of a Committee of the House of Lords, on the Silk and Wine Trade, of the month of June, 1821, in which we find it stated, that it was about 1770 that the Italian mode of preparing silk was first introduced into the British East Indies, and that it was not until 1812, (a period of more than forty years) that there was any considerable improvement in the Bengal raw silk. This, if it is not to be attributed to an endeavour on the part of the East India Company, (which we cannot suppose,) to monopolize the Italian mode of reeling to themselves, can only be ascribed to the difficulty of inducing the people of that country to abandon their imperfect method, and adopt a new one, which we find even at this moment is doing very slowly, as the native silk, as it is called, still bears a much inferior price to that reeled under the inspection of the agents of the Company. This shows the importance of introducing a good method at once, and uniformly, through this country.

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